EXECUTIVE SUMMARY

On October 2, 1998, JRCC[1] filed an application with the BLM for a maintenance coal lease for federal coal reserves located north and west of JRCC's existing Jacobs Ranch Mine (Figures ES-1 and ES-2). This coal lease application, which is referred to as the North Jacobs Ranch LBA Tract, was assigned case file number WYW146744. As applied for, this tract includes approximately 4,821 acres and approximately 533 million tons of in-place federal coal. The lands applied for in this application are located in southeastern Campbell County, Wyoming, approximately 7 miles east of Wright, Wyoming.

This lease application was reviewed by the BLM, Wyoming State Office, Division of Mineral and Lands Authorization, and it was determined that the application and the lands involved met the requirements of the regulations governing coal leasing on application at Title 43 of the Code of Federal Regulations Part 3425.1 (43 CFR 3425.1). The application was also reviewed by the PRRCT at public meetings held on February 23, 1999, in Billings, Montana, on October 27, 1999, in Gillette, Wyoming, and on October 25, 2000, in Cheyenne, Wyoming. At the most recent meeting, the PRRCT recommended that the BLM continue to process the lease application. In order to process an LBA, the BLM must evaluate the quantity, quality, maximum economic recovery, and fair market value of the federal coal and fulfill the requirements of NEPA by evaluating the environmental impacts of leasing and mining the federal coal.

To evaluate the environmental impacts of leasing and mining the coal, the BLM must prepare an EA or an EIS to evaluate the site-specific and cumulative environmental and socioeconomic impacts of leasing and developing the federal coal in the application area. The BLM made a decision to prepare an EIS for this lease application. The DEIS was released to the public in December 2000, and a formal public hearing was held in Gillette, Wyoming on January 17, 2001.

BLM will use the analysis in this EIS to decide whether or not to hold a public, competitive, sealed-bid coal lease sale for the federal coal tract and issue a federal coal lease. If a sale is held, the bidding at that sale would be open to any qualified bidder; it would not be limited to the applicant. If a lease sale is held, a federal coal lease would be issued to the highest bidder at the sale if a federal sale panel determined that the high bid at that sale meets or exceeds the fair market value of the coal as determined by BLM's economic evaluation, and if the U.S. Department of Justice determines that there are no antitrust violations if a lease is issued to the high bidder at the sale. JRCC previously applied for federal coal under the LBA

[1] Refer to page viii for a list of abbreviations and acronyms used in this document.

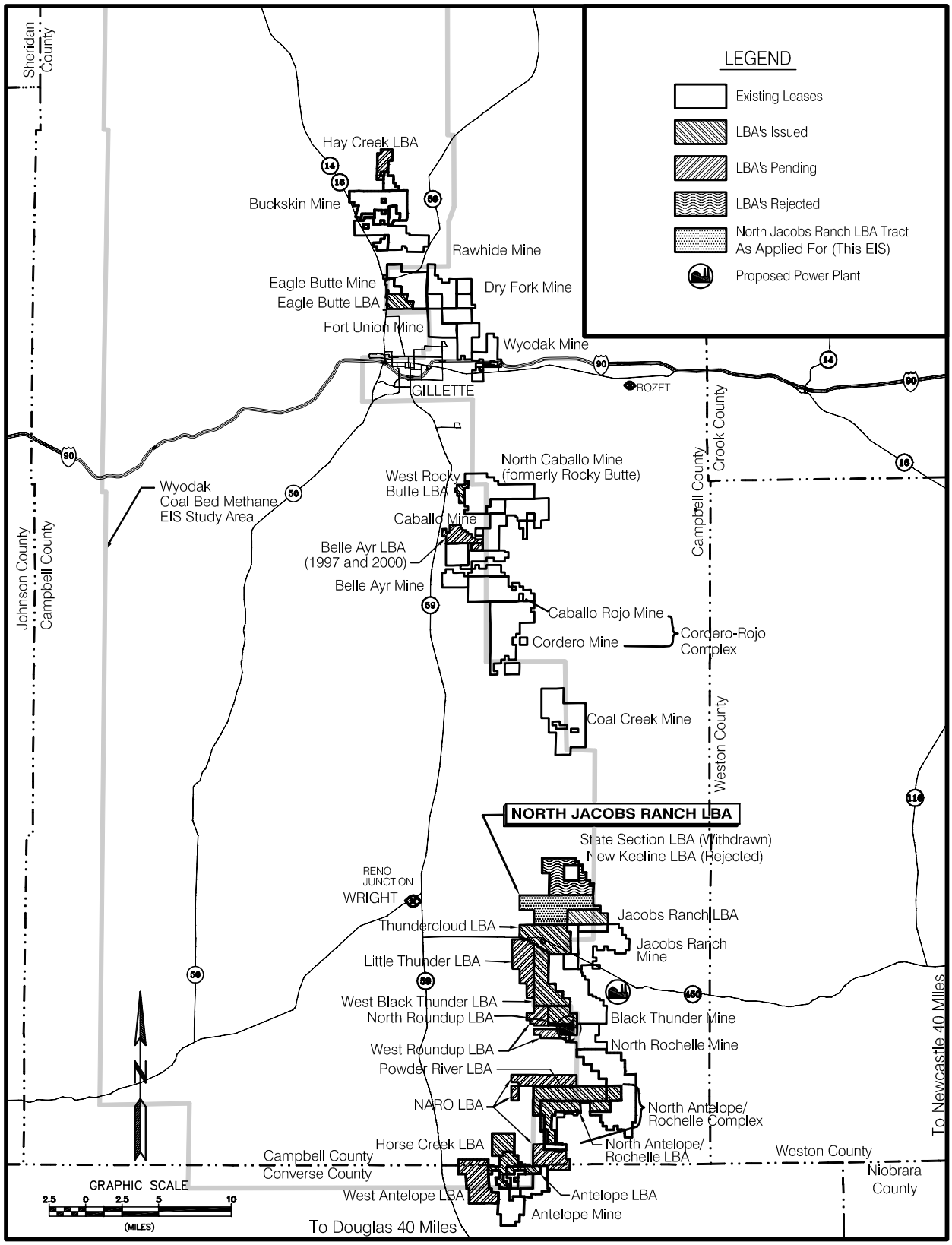

Figure ES-1. General Location Map with Federal Coal Leases and LBA's.

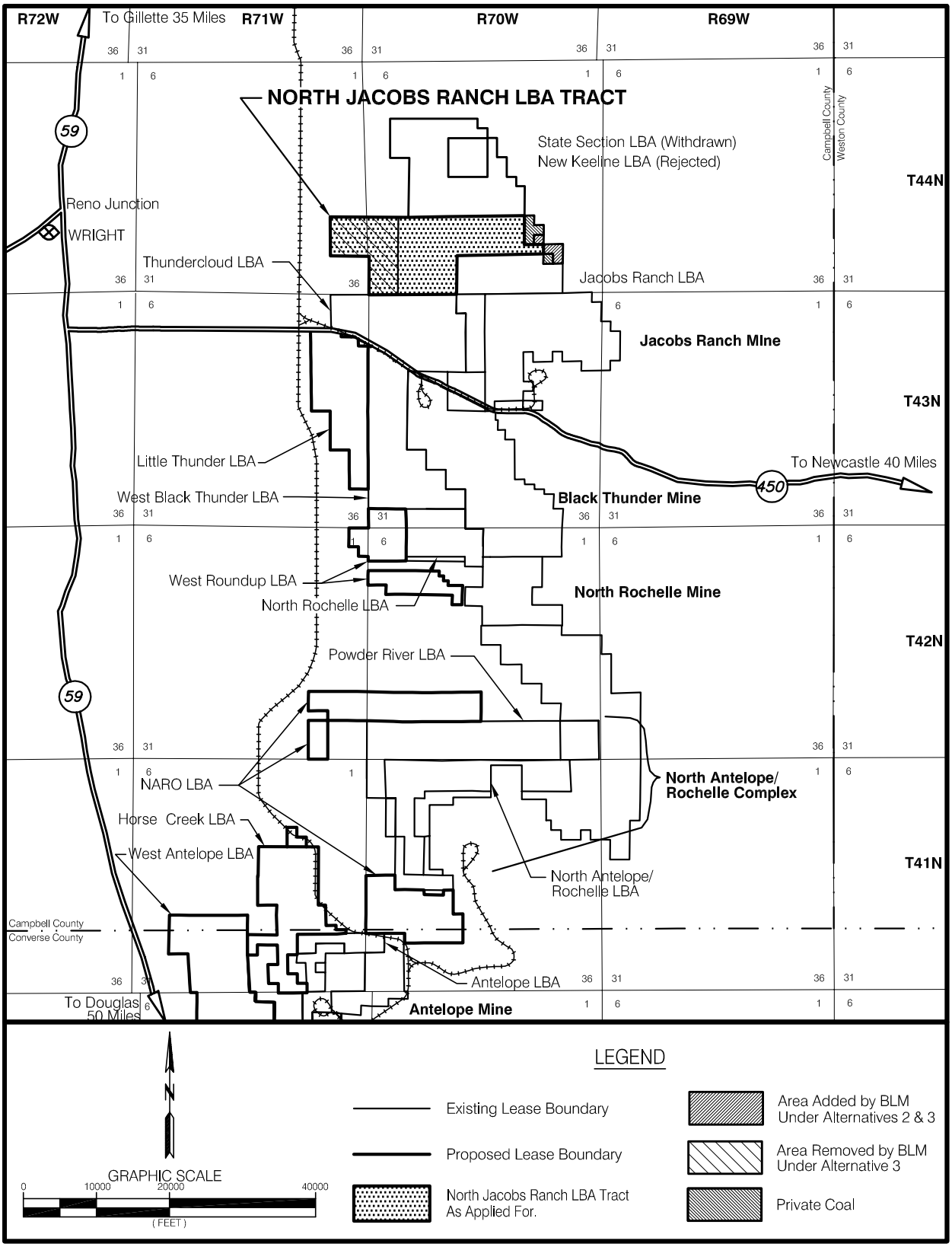

Figure ES-2. General Analysis Area.

process, was the successful high bidder when a competitive lease sale was held, and, in 1992, was issued a maintenance lease adjacent to this same mine.

Other agencies, including OSM, a cooperating agency on this EIS, will also use this analysis to make decisions related to leasing and mining the federal coal in this tract. The USFS is not a cooperating agency on this EIS because there are no federal surface lands managed by the USFS included in the North Jacobs Ranch LBA Tract.

The lands in the North Jacobs Ranch LBA Tract have been subjected to four coal planning screens and determined acceptable for consideration for leasing. A decision to lease the federal coal lands in this application would be in conformance with the BLM Resource Management Plan for the Buffalo Field Office.

The North Jacobs Ranch LBA Tract is contiguous with both the Jacobs Ranch Mine and the Black Thunder Mine, owned by Ark Land Co.

The LBA sale process is, by law and regulation, an open, public, competitive sealed-bid process. If a lease sale is held for this LBA tract, the applicant (JRCC) may not be the successful high bidder. The analysis in this EIS assumes that JRCC would be the successful bidder on the North Jacobs Ranch LBA Tract if a sale is held, and that it would be mined as a maintenance tract for the Jacobs Ranch Mine.

This FEIS analyzes four alternatives:

The Proposed Action is to hold a competitive coal lease sale and issue a maintenance lease to the successful bidder for the North Jacobs Ranch LBA Tract as applied for (Figure ES-2). Under the Proposed Action, JRCC currently estimates that average annual production would be 21 million tons per year, and the life of the existing mine would be extended by approximately 23 years. Current employment at the Jacobs Ranch Mine is 333. If the LBA tract is acquired, JRCC anticipates that employment would remain at 333 persons.

Alternative 1 is the No Action Alternative. Under this alternative, the LBA tract would not be leased, but the existing leases at the adjacent Jacobs Ranch Mine and Black Thunder Mine would be developed according to the existing approved mining plans. Under the No Action Alternative, the Jacobs Ranch Mine would mine its remaining 190.8 million tons of in-place leased coal reserves in approximately 7 years at an average annual production rate of 24.5 million tons per year and average employment would be 333 persons.

Alternative 2 the preferred alternative of the BLM, considers holding a competitive

coal lease sale and issuing a maintenance lease to the successful bidder for the North Jacobs Ranch LBA Tract as reconfigured by BLM (Figure ES-2). BLM developed an amended tract configuration in order to avoid a potential future bypass situation. Under this alternative, approximately 161 acres containing about 4 million tons of unleased federal coal east of the North Jacobs Ranch LBA Tract as applied for would be added to the tract. Portions of the area that would be added under Alternative 2 lie within the proposed right-of-way for the proposed DM&E railroad. If the DM&E project is constructed as proposed prior to the removal of the coal, mining of these lands would potentially be precluded, and the coal could not be recovered. Under this alternative, production and employment would be similar to the Proposed Action.

Alternative 3 also considers holding a competitive coal lease sale and issuing a maintenance lease to the successful bidder for a reconfigured North Jacobs Ranch LBA Tract (Figure ES-2). BLM would remove approximately 1,620 acres from the western part of the North Jacobs Ranch LBA Tract in order to reduce conflicts with existing and proposed oil and gas development and would add about 161 acres east of the tract to avoid a future bypass situation. Under this alternative, the tract would include approximately 3,364 acres and 326 million tons of in-place coal. Production and employment would be similar to the Proposed Action.

Table ES-1 summarizes coal production, surface disturbance, and mine life for the Jacobs Ranch Mine under each alternative. The environmental impacts of mining the LBA tract would be similar under the Proposed Action and Alternatives 2 and 3.

Other alternatives that were considered but not analyzed in detail include holding a competitive coal lease sale and issuing a lease to the successful bidder (not the applicant) for the purpose of developing a new stand-alone mine, expanding the tract to include additional lands applied for as part of the State Section LBA Tract application, and delaying the competitive sale of the LBA tract. The State Section LBA Tract application has been withdrawn by the applicant.

Critical elements of the human environment (BLM 1988) that could be affected by the proposed project include air quality, cultural resources, Native American religious concerns, threatened, endangered (T&E), and candidate plant and animal species, hazardous or solid wastes, water quality, wetlands/riparian zones, environmental justice, and invasive nonnative species. Five critical

Table ES-1. Summary Comparison of Coal Production, Surface Disturbance, and Mine Life for North Jacobs Ranch LBA Tract and Jacobs Ranch Mine.

Item	No Action Alternative (Existing Jacobs Ranch Mine)	Added by Proposed Action	Added by Alternative 2	Added by Alternative 3
In-Place Coal (as of 1/1/01)	190.8 mmt	533 mmt	537 mmt	326 mmt
Recoverable Coal (as of 1/1/01)[1]	172 mmt	479.7 mmt	483.3 mmt	293.4 mmt
Coal Mined Through 2000	381.5 mmt	—	—	---
Lease Acres[2]	6,955 ac	4,821.19 ac	4,982.24 ac	3,363.58 ac
Total Area To Be Disturbed[2]	8,122 ac	5,364 ac	5,465 ac	3,689 ac
Permit Area[2]	9,283.78 ac	6,110 ac	6,205 ac	4,131 ac
Average Annual Post-2000 Coal Production	24.5 mmt	-3.5 mmt	-3.5 mmt	-3.5 mmt
Remaining Life Of Mine (post-2000)	7 yrs	23 yrs	23.2 yrs	14 yrs
Average No. of Employees	333	0	0	0
Total Projected State Revenues (post-2000)[3]	$ 189.2 million	$ 527.7 million	$ 531.6 million	$ 322.7 million
Total Projected Federal Revenues (post-2000)[4]	$ 64.0 million	$ 178.6 million	$ 179.9 million	$ 109.2 million

Footnotes:

[1] Assumes 90 percent recovery of leased coal.

[2] For the Proposed Action and Alternatives 2 and 3, the disturbed acreage exceeds the leased acreage because of the need for highwall reduction, topsoil removal and other activities outside the lease boundaries. The permit area is larger than leased or disturbed areas to assure that all disturbed lands are within the permit boundary and to allow easily defined legal land description.

[3] Projected revenue to the State of Wyoming is $1.10 per ton of coal sold and includes income from severance tax, property and production taxes, sales and use taxes, and Wyoming's share of federal royalty payments (University of Wyoming 1994).

[4] Federal revenues based on $4.00 per ton price x federal royalty of 12.5 percent x amount of recoverable coal plus bonus payment on LBA coal of $0.22 per ton based on average of last nine LBA's (Table 1-1) x amount of leased coal less state's 50 percent share.

elements (areas of critical environmental concern, prime and unique farmland, wild and scenic rivers, floodplains, and wilderness) are not present in the project area and are not addressed further. In addition to the critical elements that are potentially present in the project area, the EIS discusses the status and potential effects of the project on topography and physiography, geology and mineral resources, soils, water availability and quality, alluvial valley floors, vegetation, wildlife, land use and recreation, paleontological resources, visual resources, noise, transportation resources, and socioeconomics.

The project area is located in the PRB, a part of the Northern Great Plains that includes most of northeastern Wyoming. The North Jacobs Ranch LBA Tract is located in the south-central part of the PRB. The elevation ranges from about 4,500 to 4,800 ft in an area of dissected uplands. In the LBA tract, there are three mineable coal seams, referred to as the Upper, Middle, and Lower Wyodak coal seams. The Upper Wyodak coal seam averages 12.5 feet in thickness on the LBA tract, the Middle Wyodak coal seam averages 51.5 feet in thickness, and the Lower Wyodak seam averages 8.2 feet in thickness. The average overburden thickness is about 215 ft. The intervals between the coal seams range from a few feet to more than 20 feet.

The existing topography on the LBA tract would be substantially changed during mining. A highwall with a vertical height equal to overburden plus coal thickness would exist in the active pits. Following reclamation, the average surface elevation would be lower due to removal of the coal. The reclaimed land surface would approximate premining contours and the basic drainage network would be retained, but the reclaimed surface would contain fewer, gentler topographic features. This could contribute to reduced habitat diversity and wildlife carrying capacity on the LBA tract. These topographic changes would not conflict with regional land use, and the postmining topography would adequately support anticipated land use.

The geology from the base of the coal to the land surface would be subject to considerable long-term change on the LBA tract under any action alternative. An average of 215 ft of overburden, 3 ft of interburden and 64 ft of coal would be removed from the LBA tract. The replaced overburden would be a relatively homogeneous mixture compared to the premining layered overburden.

Development of other minerals potentially present on the LBA tract could not occur during mining, but could occur after mining. Conventional oil and gas wells would have to be plugged and abandoned during mining but could be recompleted after mining if the remaining reserves justify the expense of the recompletion. There are 21 active conventional oil and gas wells located on the tract under the Proposed Action and Alternative 2,

and 14 active wells under Alternative 3. CBM resources associated with the coal that are not recovered prior to mining would be vented to the atmosphere and irretrievably lost when the coal is removed. Rim Operating, Inc. is the owner of most of the CBM drilling rights on the North Jacobs Ranch LBA Tract. As of January 2001, they had drilled 33 CBM wells on the North Jacobs Ranch LBA Tract. Thirteen of these wells began producing in December 2000, and thirteen wells began producing in January 2001. Rim plans more drilling in this area. Approximately 60 CBM drilling locations are present on the LBA tract if one well is drilled on every 80-acre spacing unit in the tract. BLM's policy is to optimize recovery of both resources, ensure the public receives a reasonable return, and encourage agreements between lessees or use BLM authority to minimize loss of publicly-owned resources. Negotiations are ongoing between JRCC and the existing oil and gas lessees on how to proceed with both operations if the coal tract is leased. An agreement on how to coordinate recovery of both resources could help increase CBM recovery prior to mining and reduce scheduling impacts to the coal mining. Without an agreement, CBM recovery could be reduced, coal mining could be postponed, or coal may not be recovered.

Consequences to soil resources from mining the LBA tract would include changes in the physical, biological, and chemical properties. Following reclamation, the soils would be unlike premining soils in texture, structure, color, accumulation of clays, organic matter, microbial populations, and chemical composition. The replaced topsoil would be much more uniform in type, thickness, and texture. It would be adequate in quantity and quality to support planned postmining land uses (i.e., wildlife habitat and rangeland).

Moderately adverse short-term impacts to air quality would be extended onto the North Jacobs Ranch LBA Tract during the time it is mined if a lease is issued. Dust would be visible to the public when mining occurs near State Highways 59 or 450 or the Hilight Road. TSP concentrations would be elevated in the vicinity of mining operations on the LBA tract, but would not violate federal or Wyoming primary and secondary standards outside the mine's permit boundary, even with increased production and when emissions from adjacent mines are considered. Concentrations of gaseous emissions would remain within acceptable federal and state standards.

There is public concern over the releases of NO_x from overburden blasting prior to coal removal. Low-lying, gaseous orange clouds containing NO_x that can be transported by wind have formed after overburden blasting. Exposure to NO_x can cause adverse health effects. EPA has expressed concerns that NO_x levels in some blasting clouds may be sufficiently high at times to cause human health effects. As a result of these incidents, WDEQ

has directed some mines to take steps designed to mitigate the effects of NO_2 emissions occurring from overburden blasting.

To date, none of the incidents of concern have occurred at the Jacobs Ranch Mine. There have been no complaints to the mine or the WDEQ about blasting clouds produced from the mine. Based on the size and nature of their blasting, the WDEQ has not directed the Jacobs Ranch Mine to take any of these steps to mitigate or prevent blasting clouds. Jacobs Ranch Mine has voluntarily established warning signs along public roadways.

In the summer of 1999 a collaborative group of PRB mines, under the Air Quality Subcommittee of the WMA, collected background air quality data and developed a monitoring program to collect information on the contents of post-blast clouds. A report prepared by the subcommittee and titled *Powder River Basin Short-term Exposure NO_2 Study* provides a summary of that data. The OSHA Immediately Dangerous of Life and Health threshold is 20 ppm (37,600 $\mu g/m_3$) and the EPA Significant Harm Level threshold is 2 ppm (3,760 $\mu g/m_3$). During the monitoring program described above, the maximum one-minute average valid values observed for each of the six monitors ranged from 0 to 8.0 ppm NO_2. The maximum one-minute average reading at the monitoring station closest to Jacobs Ranch Mine, was 1.7 ppm NO_2. The maximum 15-minute average valid values observed for each of the six monitors ranged from 0 to 1.65 ppm NO_2.

Changes in runoff characteristics and sediment discharges would occur during mining of the LBA tract, and erosion rates could reach high values on the disturbed areas because of vegetation removal. However, state and federal regulations require that surface runoff from mined lands be treated to meet effluent standards, so sediment would be deposited in ponds or other sediment-control devices. After mining and reclamation are complete, surface water flow, quality, and sediment discharge would approximate premining conditions.

Mining the LBA tract would increase both the area of lowered water levels in the coal and overburden aquifers and the area where the existing coal and overburden aquifers would be replaced by mine backfill. Drawdown in the continuous coal aquifer would be expected to increase roughly in proportion to the increase in area affected by mining and would extend farther than drawdown in the discontinuous overburden aquifers. The data available indicate that hydraulic properties of the backfill would be comparable to the premining overburden and coal aquifers. Total dissolved solids levels in the backfill could initially be expected to be higher than in the premining overburden and coal aquifers, but would be expected to meet Wyoming Class III standards for use as stock water.

Based on preliminary AVF determinations, it is unlikely that any portions of the LBA tract meet the criteria to be AVF's significant to agriculture. AVF's that are not significant to agriculture can be disturbed during mining but must be restored as part of the reclamation process. Jurisdictional wetlands that are disturbed by mining must be replaced during the reclamation process.

A total of 5.22 acres of jurisdictional wetlands comprised of 2.81 acres of manmade stockponds and 2.41 acres of portions of ephemeral stream channels were identified within the LBA tract under the Proposed Action. Existing wetlands located in the LBA tract would be destroyed by mining operations. Jurisdictional wetlands that are disturbed by mining must be replaced during the reclamation process.

Mining would progressively remove the native vegetation on the LBA tract. Reclamation and revegetation of this land would occur contemporaneously with mining. Re-established vegetation would be dominated by species mandated in the reclamation seed mixtures, which are approved by the WDEQ. The majority of these species would be native to the LBA tract. Initially, the reclaimed land would be dominated by grassland vegetation which would be less diverse than the premining vegetation. Estimates for the time it would take to restore sagebrush to premining density levels range from 20 to 100 years. An indirect impact associated with this vegetative change would potentially be a decreased big game habitat carrying capacity. However, a diverse, productive, and permanent vegetative cover would be established on the LBA tract within about 10 years following reclamation, prior to release of the final reclamation bond. The decrease in plant diversity would not seriously affect the potential productivity of the reclaimed areas, and the proposed postmining land uses (wildlife habitat and rangeland) should be achieved even with the changes in vegetation composition and diversity. The reclamation plans for the LBA tract would also include steps to control invasion by weedy (invasive, nonnative) plant species. The surface of the LBA tract is privately owned, and the private landowners would have the right to manipulate the vegetation on their lands as they desire once the final reclamation bond is released.

Surveys have been conducted to determine the presence of potential habitat for T&E or candidate plant species, but no suitable habitat has been found on the North Jacobs Ranch LBA Tract.

In the short term, wildlife would be displaced from the LBA tract in areas of active mining and the acreage of habitat available for wildlife populations would be reduced. However, the LBA tract does not contain any unique or crucial big game habitat, and habitat would be disturbed in parcels, with reclamation progressing as new disturbance occurs. In the long term, following reclamation, carrying capacity and

habitat diversity may be reduced due to flatter topography, less diverse vegetative cover and reduction in sagebrush density.

T&E wildlife surveys specific to the proposed lease tract were conducted in the summer of 1999. No T&E species or potential habitat were found on the tract for the bald eagle, black-footed ferret, or mountain plover during those surveys. There have been no sitings of swift foxes on the LBA tract or adjacent lands, and there are no prairie dog colonies on the tract.

Active mining would preclude other land uses. Recreational use of the LBA tract would be severely limited during mining; however, there is no public surface included in the tract. Within 10 years after initiation of each reclamation phase, rangeland and wildlife use would return to near premining levels. The cumulative impacts of energy development (coal mining, oil and gas) in the PRB are and will continue to contribute to a reduction in hunting opportunities for some animals (pronghorn, mule deer, and sage grouse).

Mining would also impact oil and gas development on the leased lands during active mining. The federal oil and gas rights are leased. As discussed above, there are active conventional oil and gas wells and CBM wells on the tract under the Proposed Action and Alternatives 2 and 3. Existing active wells would have to be plugged and abandoned and all production and transportation equipment associated with oil and gas production would have to be removed prior to mining. New drilling would not be possible in areas of active mining, but could potentially take place in areas not being mined, or in reclaimed areas. CBM that is not recovered prior to mining would be vented and irretrievably lost as the coal is removed.

Cultural resources on the LBA tract would be impacted by mining, but adverse impacts would be mitigated through data recovery and/or avoidance of significant properties. Formal Wyoming SHPO consultation is required for concurrence with determination of the eligibility of sites for inclusion on the NRHP prior to mining. The eligible cultural properties on the LBA tract which cannot be avoided or which have not already been subjected to data recovery action would be carried forward in the mining and reclamation plan as requiring protective stipulations until a testing, mitigation, or data recovery program is developed in consultation with the SHPO.

No sites of Native American religious or cultural importance have been identified on the LBA tract. If such sites or localities are identified at a later date, appropriate action must be taken to address concerns related to those sites.

No unique or significant paleontological resources have been identified on the North Jacobs Ranch LBA Tract, and the likelihood of encountering significant paleontological resources is small.

Mining activities at the existing Jacobs Ranch Mine are currently visible from the Hilight Road and State Highway 450, and mining activities on the North Jacobs Ranch LBA Tract would also be visible from these roads. Mining would affect landscapes classified by BLM as VRM Class IV, and the landscape character would not be significantly changed following reclamation. No unique visual resources have been identified on or near the LBA tract.

Impacts from noise generated by mining activities on the LBA tract are not expected to be significant due to the remote nature of the site.

No new or reconstructed coal transportation facilities would be required under the Proposed Action or Alternatives 2 or 3. Leasing the LBA tract would extend the length of time that coal is shipped from the permitted Jacobs Ranch Mine. Active pipelines and utility lines would have to be relocated in accordance with previous agreements, or agreements would have to be negotiated for their removal or relocation.

Royalty and bonus payments for the coal in the LBA tract would be collected by the federal government and split with the state. A 1994 University of Wyoming study estimated that the total direct fiscal benefit to the State of Wyoming from coal mining taxes and royalties is $1.10/ton of coal mined. Using that estimate, mining the coal in the North Jacobs Ranch LBA Tract under the action alternatives would provide a tax and royalty benefit to the State of Wyoming of $322.7 to $527.7 million, expressed in current dollars. Mine life, and thus employment, would be extended roughly 14 to 23 years at the Jacobs Ranch Mine, and JRCC projects that employment at the mine would remain at 333 persons.

With regard to Environmental Justice issues, it was determined that potentially adverse impacts do not disproportionately affect minorities, low-income groups or Native American tribes or groups. No tribal lands or Native American communities are included in this area, and no Native American treaty rights or Native American trust resources are known to exist for this area.

Under the No-Action Alternative, the coal lease application would be rejected and the area contained in the application would not be offered for lease at this time. The tract could be nominated for lease again in the future. Under the No Action Alternative, the impacts described in the preceding paragraphs to topography and physiology, geology and minerals, soils, air quality, water resources, alluvial valley floors, wetlands, vegetation, wildlife, threatened, endangered and candidate species, land use and recreation, cultural resources, Native American concerns, paleontological resources, visual resources, noise, transportation, and socioeconomics would occur on the existing Jacobs Ranch coal leases, but these impacts would not be extended onto the LBA tract. Portions of the North Jacobs Ranch LBA Tract adjacent to the

existing Jacobs Ranch and Black Thunder Mines would be disturbed to recover the coal in the existing leases.

If impacts are identified during the leasing process that are not mitigated by existing required mitigation measures, BLM can include additional mitigation measures, in the form of stipulations on the new lease, within the limits of its regulatory authority. BLM has not identified additional special stipulations that should be added to the BLM lease or areas where additional or increased monitoring measures are recommended.

Cumulative impacts result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor, but collectively significant, actions occurring over time.

Since decertification of the Powder River Federal Coal Region in 1990, the BLM Wyoming State Office has issued 10 new federal coal leases containing approximately 2.747 billion tons of coal using the LBA process. This leasing process has undergone the scrutiny of two appeals to the Interior Board of Land Appeals and one audit by the General Accounting Office.

Eight additional coal lease applications, including the North Jacobs Ranch application, are currently pending. The pending LBA applications contain approximately 2.3 billion tons of coal.

The Wyoming and Montana BLM state offices completed a study entitled "*Powder River Basin Status Check*" in 1996. The purpose of this study was to document actual mineral development impacts in the Powder River Basin from 1980 to 1995 and compare them with mineral development impacts that were predicted to occur by 1990 in the five previously prepared Powder River Basin regional EISs. This study concluded that, in general, the levels of development in 1995 were within the levels predicted in the previously prepared regional EISs. The status check was updated prior to the 1997 and 1999 PRRCT public meetings in Casper, Wyoming and Billings, Montana.

Four of the previously prepared regional EISs evaluated coal development in the Powder River Basin in Wyoming. They are:

Final Environmental Impact Statement, Eastern Powder River Coal Basin of Wyoming, BLM, October 1974;

Final Environmental Impact Statement, Eastern Powder River Coal, BLM, March 1979;

Final Environmental Impact Statement, Powder River Coal Region, BLM, December 1981;

Draft Environmental Impact Statement, Round II Coal Lease Sale, Powder River Region, BLM, January 1984.

For Wyoming, the status check compared actual development in Campbell and Converse counties with predictions in the 1979 and 1981 Final EIS's, and USGS Water Resources Investigations Report 88-4046, entitled "*Cumulative Potential Hydrologic Impacts of Surface Coal Mining in the Eastern Powder River Structural Basin*," by Martin and others.

Since 1989, coal production in the Powder River Basin has increased by approximately 6.8 percent per year. The increasing state production is primarily due to increasing sales of low-sulfur, low-cost PRB coal to electric utilities who must comply with Phase I requirements of Title III of the 1990 Clean Air Act Amendments. Electric utilities account for 97 percent of Wyoming's coal sales. Oil production has decreased in the Wyoming Powder River Basin since 1990. In recent years, more wells have been plugged annually than have been drilled.

Natural gas production has been increasing, particularly in Campbell County, due to the development of shallow CBM resources west of the coal mines. CBM exploration and development is currently ongoing throughout the PRB in Wyoming, and it is estimated that as of October 2000 there were more than 5,000 productive wells in place. Since the early 1990's, the BLM has completed numerous EAs and two EISs analyzing CBM projects. The last EIS was the Wyodak CBM Project EIS, which was completed in 1999. The Wyodak CBM Project EIS area included 3,600 square miles of mixed federal, state, and private lands. The EIS analyzed the impacts of drilling and producing up to 5,000 new federal, state, and private CBM wells in addition to the 890 wells that had been evaluated in previous NEPA documents. BLM recently completed an EA to analyze the impacts of drilling as many as 2,500 additional federal drainage protection wells within the Wyodak EIS project area. These wells would be drilled and produced to prevent the loss of federal CBM resources and corresponding royalties from undrilled federal oil and gas leases that are adjacent to and potentially being drained by wells drilled on private or state oil and gas leases. BLM is also preparing an EIS to analyze the cumulative impacts of reasonably foreseeable CBM and conventional oil and gas development within the Wyoming portion of the PRB. The regional coal EISs (BLM 1974, 1979, 1981, 1984) and the Buffalo RMP (BLM 1985) analyzed oil and gas development but did not anticipate that the oil and gas development would include production of CBM resources.

Under the current process for approving CBM drilling, CBM wells can be drilled on private and state oil and gas leases after approval by the WOGCC and the Wyoming SEO. On federal oil and gas leases, BLM must analyze the individual and cumulative environmental impacts of all drilling, as required by NEPA, before CBM drilling can be authorized.

Water and methane are produced from the coal by CBM wells, and the area of CBM development in the PRB is west of the existing coal mines. Therefore, the potential exists for overlapping groundwater drawdown in the coal if both resources are produced. As CBM production continues adjacent to the five southern mines, the resulting groundwater withdrawal from the Wyodak coal would overlap additively with groundwater drawdown in the Wyodak caused by coal mining.

Other mineral development levels in the Wyoming PRB are currently lower than predicted in the EIS's. In the 1970's, significant uranium development was anticipated in southwest Campbell County and northwest Converse County. This development did not materialize because the price of uranium dropped in the early 1980's. There are currently two *in situ* uranium operations in Converse and Johnson counties, but no mines and no mills. Wyoming uranium production is expected to decrease this year.

In addition to the ongoing coal and CBM development, other projects are in progress or planned in the vicinity of the southern mine group, including: construction and operation of the North American Power Group's Two Elk and Two Elk Unit 2 coal fired power plants east of the Black Thunder Mine; construction of Wygen #1 power plant which has been proposed at the Wyodak Mine site; construction and operation by North American Power Group of a coal fired power plant at the Cordero Rojo Complex and construction and use of the proposed DM&E rail line. One project, the ENCOAL facility, which at one time was scheduled for construction at the North Rochelle Mine, has been indefinitely delayed. The Two Elk and DM&E projects, due to their locations, could have directly overlapping impacts with the impacts of mining the North Jacobs Ranch LBA Tract. Air quality, water quantity and quality, and employment levels in particular may be cumulatively impacted if these projects are added to existing coal mining and CBM production. The duration of these cumulative impacts would be extended by leasing the LBA tract.

The existing and proposed development in the PRB has and will continue to result in the introduction of additional roads, railroads, power lines, fences, mine structures, and oil and gas production equipment. This area has already undergone change from a semi-agriculturally based economy to a coal mining and oil and gas economy. Environmentally, the open, basically treeless landscape has been visibly altered by construction, equipment, and human activities. Leasing of the LBA tract would increase the total area that would be affected by mining but would not cause a significant cumulative change in daily impacts because it is an extension of an ongoing operation and mining disturbance is progressive with reclamation proceeding con-temporaneously. Cumulative impacts vary by resource and range from being almost undetectable to being substantial. Cumulative impacts on air quality, groundwater quantity and

wildlife habitat (particularly antelope) have created the greatest concern.

A regional cumulative air quality impact analysis was performed for the Horse Creek Coal Lease Application EIS in 1999 to estimate impacts of all foreseeable development on air quality in the year 2015. This analysis was an update and modification to the far-range cumulative air quality analysis prepared for the Wyodak Coal Bed Methane Project EIS. An updated regional air quality analysis has been prepared as part of the environmental analysis for the proposed DM&E Railroad. Tables ES-2 and ES-3 show the results of the Horse Creek analysis. The results show that the maximum projected cumulative impacts on air quality are much smaller than regulatory standards and increments (Table ES-2). However, the predicted impacts to visibility are significant, particularly at Badlands National Park (Table ES-3).

Figure ES-3 shows modeled and extrapolated worst-case coal aquifer drawdown as a result of mining at the southern group of mines. Monitoring of backfill areas indicates that reclaimed areas are being recharged with water generally suitable for livestock use (the premining use).

Wildlife habitat quality has declined in the PRB due to a continuing trend of landscape fragmentation from roads, rail lines, oil and gas wells, coal mines, and fences. Mining of the LBA tract would add to this habitat fragmentation. Wildlife monitoring indicates that wildlife are using reclaimed areas.

Table ES-2. Results of Air Quality Impact Analysis ($\mu g/m^3$).

Area	Annual NO_2	24-hr PM_{10}	Annual PM_{10}	3-hr SO_2	24-hr SO_2	Annual SO_2
CUMULATIVE IMPACTS						
Northern Cheyenne Reservation, MT	0.03	0.58	0.02	1.60	0.56	0.02
Badlands National Park, SD	1.26	0.65	0.10	3.61	1.20	0.21
Wind Cave National Park, SD	0.16	0.62	0.06	2.17	0.84	0.08
Class I PSD Increment	**2.5**	**4**	**8**	**25**	**5**	**2**
Black Elk Wilderness, SD	0.09	1.04	0.05	2.48	0.79	0.07
Jewel Cave National Monument, SD	0.13	0.76	0.08	3.92	0.87	0.10
Mt. Rushmore National Monument, SD	0.08	1.01	0.05	1.93	0.55	0.06
Cloud Peak Wilderness, WY	0.01	0.90	0.04	1.08	0.32	0.01
Devils Tower National Monument, WY	0.13	0.80	0.16	2.84	0.50	0.07
National Ambient Air Quality Standard	**100**	**150**	**50**	**1300**	**365**	**80**

Table ES-3. Predicted Annual Days of Visibility Reductions At Class I and Class II Sensitive Areas from Cumulative Sources.

Location	Type of Area	Number of Days deciview change >0.5	Number of Days deciview change >1.0
Northern Cheyenne Reservation	Class I	18	8
Badlands National Park	Class I	173	70
Wind Cave National Park	Class I	94	45
Black Elk Wilderness	Class II	66	28
Jewel Cave National Monument	Class II	72	32
Mt. Rushmore National Monument	Class II	58	22
Cloud Peak Wilderness	Class II	15	4
Devils Tower National Monument	Class II	70	28

Note: The Northern Cheyenne Reservation is a redesignated Class I area and is not addressed by existing visibility regulations which apply to the federally mandated Badlands and Wind Cave Class I areas.

This EIS presents the BLM's analysis of environmental impacts under authority of the NEPA and associated rules and guidelines. The BLM will use this analysis to make a leasing decision. The decision to lease these lands is a necessary requisite for mining, but is not in itself the enabling action that will allow mining. The most detailed analysis prior to mine development would occur after the lease is issued, when the lessee files an application for a surface mining permit and mining plan approval, supported by extensive proposed mining and reclamation plans, to the WDEQ.

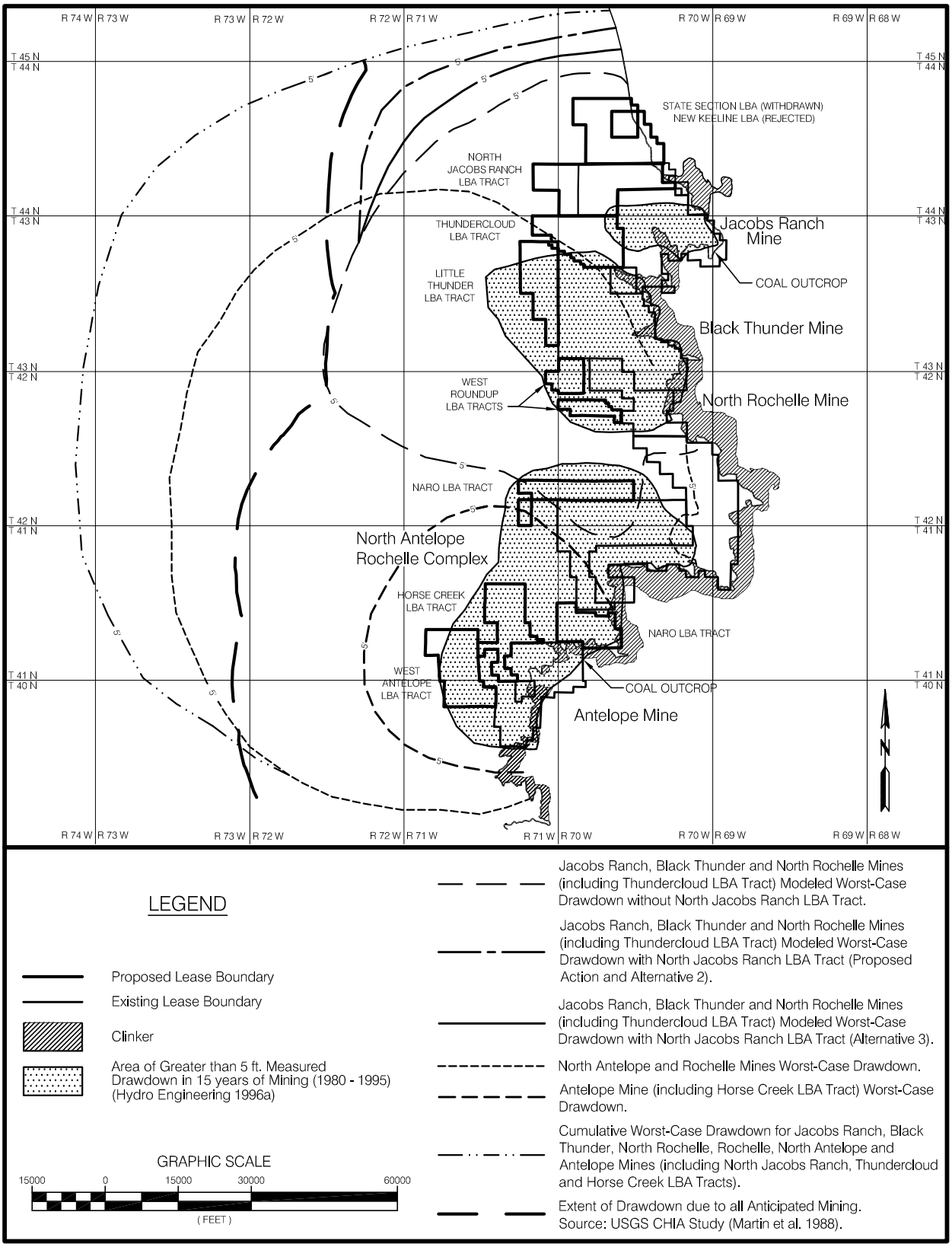

Figure ES-3. Modeled and Extrapolated Worst-Case Coal Aquifer Drawdown Scenarios Showing Extent of Actual 15-Year Drawdowns and USGS Predicted Cumulative Drawdowns.